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Indian Standard

SPECIFICATION FOR MOBILE KIT FOR MILK TESTING

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Gr 3 *March* 1967

Indian Standard

SPECIFICATION FOR MOBILE KIT FOR MILK TESTING

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(*Continued on page* 10)

Indian Standard
SPECIFICATION FOR MOBILE KIT FOR MILK TESTING

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 23 November 1966, after the draft finalized by the Dairy Industry Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 Milk is required to be tested at production and collection centres where regular laboratory facilities do not exist. A compact kit containing the requisite apparatus and reagents can be of great help for this purpose. This standard prescribes the apparatus and reagents for rapid examination of milk and it is hoped it will be helpful in the indigenous production of mobile kits and will make the testing of milk more prevalent.

0.3 While collecting milk at production centres, all the tests listed in this standard are not required to be carried out. However, it is felt that the kit should be complete in itself so that milk inspectors are able to carry out all the tests that may be necessary under different conditions. Care has also been taken to ensure that the kit does not become too heavy.

0.4 The mobile kit illustrated in Fig. 1 to 5 of this standard is for guidance only. It is based on the mobile kit evolved at the National Dairy Research Institute, Karnal.

1966

1. SCOPE

1.1 This standard prescribes the apparatus and reagents which may be conveniently kept in a mobile kit for rapid examination of milk.

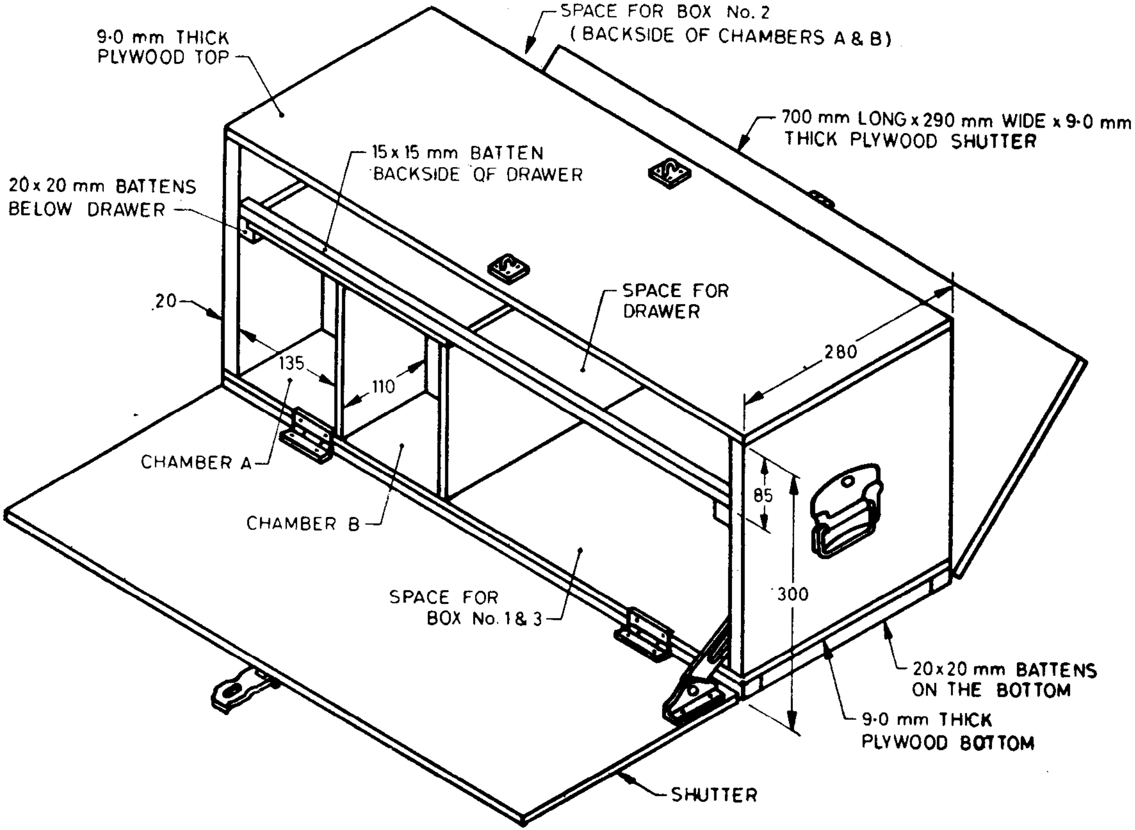
2. TESTS

2.1 The kit shall have facilities for carrying out the following tests, which shall be performed as given in IS : 1479 (Part I)-1960*:

a) *Organoleptic Test and Temperature Measurement*
b) *Density Measurement*
c) *Sediment Test*

---

*Methods of test for dairy industry: Part I Rapid examination of milk.


9·0 mm THICK PLYWOOD TOP
SPACE FOR BOX No. 2 (BACKSIDE OF CHAMBERS A & B)
700 mm LONG x 290 mm WIDE x 9·0 mm THICK PLYWOOD SHUTTER
15 x 15 mm BATTEN BACKSIDE OF DRAWER
20 x 20 mm BATTENS BELOW DRAWER
20
135
110
SPACE FOR DRAWER
280
85
300
CHAMBER A
CHAMBER B
SPACE FOR BOX No. 1 & 3
20 x 20 mm BATTENS ON THE BOTTOM
9·0 mm THICK PLYWOOD BOTTOM
SHUTTER

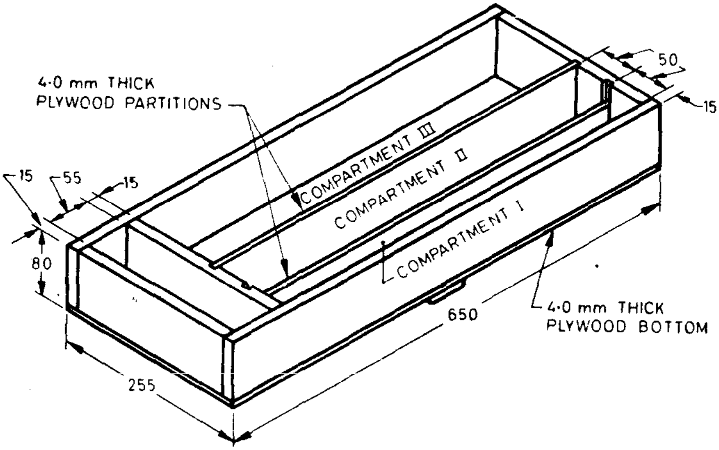
All dimensions in millimetres.

Front view of mobile milk testing kit. The kit comprises a drawer (*see* Fig. 2), three boxes (*see* Fig. 3 to Fig. 5) and two chambers—A and B. Chamber A may be used for water-bath (item 32 of **3.1**) and Chamber B may be used for wire basket and sterilized test-tubes (items 34 and 35 of **3.1**).

FIG. 1 MOBILE MILK TESTING KIT

- d) *Determination of pH*
- e) *Clot-On-Boiling (C. O. B.) Test*
- f) *Alcohol Test*
- g) *Alizarin-Alcohol Test*
- h) *Ten-Minute Resazurin Test*
- j) *Determination of Acidity*
- k) *Determination of Fat*
- m) *Determination of Solids-Not-Fat*
- n) *Detection of Cane Sugar*
- p) *Detection of Carbonates*
- q) *Detection of Mastitis*
- r) *Detection of Starch*

2.2 The kit shall also have facilities for the preparation of slides for direct microscopic count.

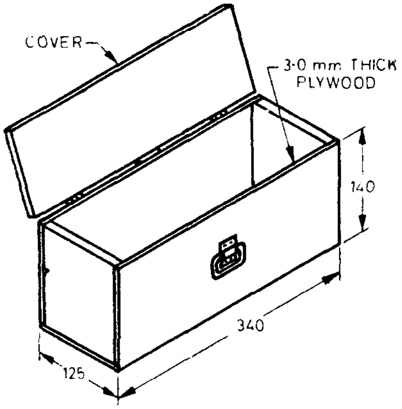


All dimensions in millimetres.

Drawer comprising three compartments and a side space. The compartments may be used for apparatus as indicated below:

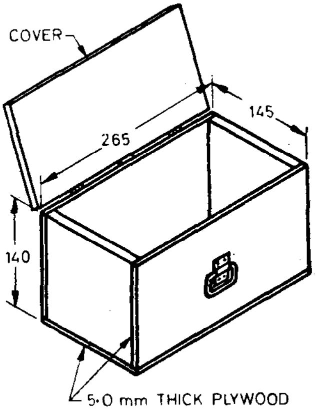
I—Items 1 to 11 of **3.1**
II—Items 12 to 22 of **3.1**
III—Items 23 to 26 and 36 to 39 of **3.1**
Side space — Item 33 of **3.1**

FIG. 2 DETAIL OF DRAWER



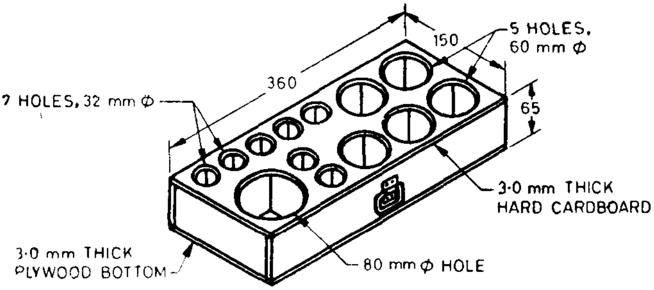
All dimensions in millimetres.

FIG. 3 BOX NO. 1 FOR A MANUALLY-OPERATED CENTRIFUGE FOR FAT



All dimensions in millimetres.

FIG. 4 BOX NO. 2 FOR APPARATUS ITEMIZED AS 27 TO 31 IN **3.1**



All dimensions in millimetres.

FIG. 5 BOX NO. 3 FOR A SAMPLE BOTTLE AND REAGENTS LISTED UNDER **4.1**

3. APPARATUS

3.1 The following apparatus shall be kept in the kit:

Sl No.	*Apparatus*	*Number*
1.	Density hydrometer	1
2.	Butyrometers	3
3.	Rubber stoppers for butyrometers	3
4.	Pipettes	
	a) Milk pipette, 11 ml	1
	b) Graduated, 10 ml	1
	c) Volumetric, 10 ml	1
	d) Volumetric, 1 ml	1
5.	Burette, 10 ml	1
6.	Thermometer, 0° to 100°C	1
7.	Flask, conical	1
8.	Tilt measure for sulphuric acid	1
9.	Tilt measure for amyl alcohol	1
10.	Measure for alcohol, 5 ml	1
11.	Colour card for Resazurin Test	1
12.	Glass marking pencil	1
13.	Glass rods	2
14.	Sediment tester, with filling surface 2·5 cm in diameter	1

Sl No.	*Apparatus*	*Number*
15.	Sediment disc ratings, showing 0·0, 0·2, 0·5, 1·0, 2·0 and 3·0 mg sediment or higher concentration as required per 500 ml of milk	—
16.	White lintine cotton disc, 32 mm in diameter with exposed filtration area 28 mm in diameter	1
17.	IS Sieves, one corresponding to 850-micron and the other to 425-micron (*see* IS : 460-1962*)	2
18.	Box containing *p*H test indicator strips	1
19.	Loop for direct microscopic count	1
20.	0·01 ml pipette, sterilized	1
21.	1-cm slides for direct microscopic count of milk	10
22.	Test-tube brush	1
23.	Plunger rods	2
24.	Dipper, S. S., 10 ml	1
25.	Richmond scale	1
26.	Cotton wool packet	1
27.	Plunger disc	2
28.	Spirit lamp	1
29.	Match-box	1
30.	Tripod stand	1
31.	Duster	1
32.	Water-bath	1
33.	Rack containing test-tubes	1
34.	Wire basket	1
35.	Test-tubes, 15 × 1·9 cm, sterilized and plugged with cotton	20
36.	Rubber stoppers for test-tubes, sterilized	20
37.	1-ml pipettes, sterile	4
38.	10-ml pipettes, sterile	4
39.	Pipette case, sterilized	1
40.	Centrifuge, manually-operated, conforming to IS : 1223-1958†	1
41.	Sample bottles, wide-mouthed	2

---

*Specification for test sieves (*revised*).

†Apparatus for the determination of fat in whole milk, evaporated (unsweetened) milk, separated milk, skim milk, buttermilk and cream by the Gerber method.

4. REAGENTS

4.1 The following reagents shall be kept in the kit in narrow-mouthed bottles which may be of polyethylene:

Sl No.	*Reagents*
1.	Alcohol — alizarin reagent
2.	Resazurin solution
3.	Phenolphthalein indicator
4.	Sodium hydroxide — 0·1 N
5.	Ethyl alcohol — 68 percent by weight
6.	Sulphuric acid — sp gr 1·84
7.	Amyl alcohol — sp gr 0·803 to 0·805 at 27°C
8.	Rosalic acid — alcoholic
9.	Hydrochloric acid — concentrated
10.	Resorcinol vial — 5 g
11.	Iodine solution — 1 percent

5. FABRICATION

5.1 Material — The kit shall be made of suitable light weight material, such as well-seasoned hardwood, hardboard and aluminium.

5.2 Construction — The kit shall have partitions so as to ensure minimum disturbance to the apparatus and reagents during movement. A scheme of partitions is given in Fig. 1.

5.3 Joints — The kit shall be suitably reinforced at joints to withstand rough handling in transit and under field conditions.

5.4 Strapping Facilities — The kit may have strong straps for tying.

6. MARKING

6.1 The kit shall be marked legibly and indelibly with the manufacturer's name or initials or trade-mark.

6.1.1 Each kit may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

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INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	*Unit*	*Symbol*
Length	Metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Suplementary Units

Quantity	*Unit*	*Symbol*
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	*Unit*	*Symbol*	*Definition*
Force	newton	N	1 N = 1 kg.m/s^2
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2

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